

ABSTRACT

[1146] Techniques to iteratively detect and decode data transmitted in a wireless (e.g., MIMO-OFDM) communication system. The iterative detection and decoding is performed by iteratively passing soft (multi-bit) "*a priori*" information between a detector and a decoder. The detector receives modulation symbols, performs a detection function that is complementary to the symbol mapping performed at the transmitter, and provides soft-decision symbols for transmitted coded bits. "Extrinsic information" in the soft-decision symbols is then decoded by the decoder to provide its extrinsic information, which comprises the *a priori* information used by the detector in the detection process. The detection and decoding may be iterated a number of times. The soft-decision symbols and the *a priori* information may be represented using log-likelihood ratios (LLRs). Techniques are provided to reduce the computational complexity associated with deriving the LLRs, including interference nulling to isolate each transmitted signal and "dual-maxima" approximation.